

WHAT IS CLAIMED IS:

1. A method for wireless peer-to-peer communication over an unlicensed wireless communication spectrum within a medium-range distance without routing or relaying of messages, comprising the steps of:
  - assigning a unique identifier to a peer including at least a first peer and a second peer;
  - uploading a unique identifier of the first peer to the second peer;
  - uploading a unique identifier of the second peer to the first peer;
  - assigning at the first peer a state of the second peer to an active state or an inactive state; and
  - assigning at the second peer a state of the first peer to an active state or an inactive state.
2. The method of claim 1, further comprising the steps of:
  - building a peer list on a peer, the peer list comprising the unique identifiers uploaded to the peer; and
  - displaying the peer list.
3. The method of claim 2, further comprising the steps of:
  - personalizing the peer list by entering personalized information for peers on the peer list; and
  - displaying the personalized information when displaying the peer list.
4. The method of claim 2, further comprising the steps of:
  - entering personal information of a user into a peer;
  - uploading the personal information when uploading the peer's unique identifier to another peer;
  - including the personal information when building a peer list; and
  - displaying the personal information when displaying the peer list.

5. The method of claim 2, further comprising the steps of:

broadcasting from a broadcasting peer its unique identifier over the unlicensed wireless communication spectrum;

5 detecting at a detecting peer a presence of the broadcasting peer within an operating range of wireless communication by monitoring for and receiving the broadcast unique identifier signal;

determining at the detecting peer whether the received unique identifier of the broadcasting peer matches a unique identifier previously uploaded to the detecting peer;

10 transmitting from the detecting peer a response message to the broadcasting peer, if (a) the received unique identifier of the broadcasting peer matches the unique identifier previously uploaded to the detecting peer, and (b) the broadcasting peer has been assigned to an active state at the detecting peer;

15 upon receiving the response message from the detecting peer, determining at the broadcasting peer to authorize a communication connection between the broadcasting peer and the detecting peer, if (a) the detecting peer is on the broadcasting peer's peer list, and (b) the detecting peer has been assigned an active state on the broadcasting peer's peer list;

20 transmitting from the broadcasting peer to the detecting peer an authorization message that authorizes the communication connection between the broadcasting peer and the detecting peer, if the communication connection is authorized; and

establishing the communication connection between the broadcasting peer and the detecting peer.

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6. The method of claim 5, wherein a collision avoidance protocol is employed to avoid message collisions among peers operating within the medium range distance of wireless communication.

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7. The method of claim 5, further comprising the step of:

communicating electronic messages between the broadcasting peer and the detecting peer.

5        8. The method of claim 5, wherein authorizing and establishing the communication connection between the broadcasting peer and the detecting peer is accomplished with a communication protocol that allows routing or relaying of messages.

10        9. The method of claim 5, further comprising the steps of:  
displaying on a peer a state of a detected peer within the medium-range distance of wireless communication;  
and continually updating and displaying the state of the detected peer.

15        10. The method of claim 5, wherein the medium-range distance is less than 5 miles.

11. The method of claim 5, wherein the unlicensed communication spectrum is 460 MHz band.

20        12. The method of claim 5, wherein the unlicensed communication spectrum is 900 MHz band.

25        13. The method of claim 5, wherein the unlicensed communication spectrum is 2.4 GHz band.

14. The method of claim 5, wherein the unlicensed communication spectrum is 5.7 GHz band.

30        15. The method of claim 1, further comprising the steps of:  
broadcasting from a broadcasting peer its unique identifier over the unlicensed wireless communication spectrum;

detecting at a detecting peer a presence of the broadcasting peer within an operating range of wireless communication by monitoring for and receiving the broadcast unique identifier signal;

5 determining at the detecting peer whether the received unique identifier of the broadcasting peer matches a unique identifier previously uploaded to the detecting peer;

transmitting from the detecting peer an authorization message to the broadcasting peer that authorizes communication connection between the broadcasting peer and the detecting peer, if (a) the received unique identifier of the broadcasting peer matches the unique identifier previously uploaded to the  
10 detecting peer, and (b) the broadcasting peer has been assigned to an active state at the detecting peer; and

establishing a communication connection between the broadcasting peer and the detecting peer.

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16. The method of claim 15, wherein a collision avoidance protocol is employed to avoid message collisions among peers operating within the medium range distance of wireless communication.

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17. The method of claim 15, further comprising the step of:  
communicating electronic messages between the broadcasting peer and the detecting peer.

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18. The method of claim 15, further comprising the steps of:  
displaying on a peer a state of a detected peer within the medium-range distance of wireless communication;  
and continually updating and displaying the state of the detected peer.

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19. The method of claim 15, wherein the medium-range distance is less than 5 miles.

20. The method of claim 15, wherein the unlicensed communication spectrum is 460 MHz band.

5           21. The method of claim 15, wherein the unlicensed communication spectrum is 900 MHz band.

22. The method of claim 15, wherein the unlicensed communication spectrum is 2.4 GHz band.

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23. The method of claim 15, wherein the unlicensed communication spectrum is 5.7 GHz band.

24. A peer communication device for wireless peer-to-peer  
15 communication over an unlicensed wireless communication spectrum within a medium-range distance without routing or relaying of messages, wherein a collision avoidance protocol is employed, the peer communication device comprising:

20           a first memory for storing a unique identifier;  
          a short-range transceiver for exchanging unique identifiers;  
          a receiver for receiving incoming messages;  
          a transmitter for transmitting outgoing messages;  
          a second memory for storing incoming messages and outgoing messages;  
          a processor; and  
25           a power supply,

          wherein: (1) the unique identifiers are exchanged between a pair of peer communication devices via the short-range transceiver before any communication can take place between the peer communication devices, (2) the exchanged unique identifiers are assigned to an active state or an inactive state, (3) a peer list  
30 comprising a list of the exchanged unique identifiers is built on the peer communication device, (4) the transmitter broadcasts the unique identifier stored in the first memory over the unlicensed wireless communication spectrum, (5) a

presence of a peer communication device is detected when the receiver receives a broadcast unique identifier, (6) the processor determines whether the received unique identifier matches any of the exchanged unique identifiers by looking up the peer list, (7) if matched, the processor forms an authorization message if the  
5 received unique identifier has been assigned to an active state on the peer list, (8) the transmitter transmits the authorization message over the unlicensed wireless communication spectrum, and (9) a communication connection is established between the pair of peer communication devices.

10           25. The peer communication device of claim 24, further comprising:  
a display for showing a state of a detected peer within the medium-range distance of wireless communication and continually updating and displaying the state of the detected peer.

15           26. The peer communication device of claim 24, further comprising:  
an input means for entering data, including personal information of a user.

27. The peer communication device of claim 24, further comprising a means for measuring a reception power level, the means coupled to the processor,  
20 wherein: (1) the processor includes a transmission power level when forming the response message, (2) the processor retrieves the reception power level from the means for measuring a reception power level, and (3) the processor calculates and adjusts a power level of a return signal based on the transmission power level and the reception power level.

25           28. The peer communication device of claim 24, wherein the medium-range distance is less than 5 miles.

29. The peer communication device of claim 24, wherein the unlicensed  
30 communication spectrum is 460 MHz band.

30. The peer communication device of claim 24, wherein the unlicensed communication spectrum is 900 MHz band.

5 31. The peer communication device of claim 24, wherein the unlicensed communication spectrum is 2.4 GHz band.

32. The peer communication device of claim 24, wherein the unlicensed communication spectrum is 5.7 GHz band.

10 33. A system for wireless peer-to-peer communication over an unlicensed wireless communication spectrum within a medium-range distance without routing or relaying of messages, comprising:

means for assigning a unique identifier to a peer including at least a first peer and a second peer;

15 means for uploading a unique identifier of the first peer to the second peer;

means for uploading a unique identifier of the second peer to the first peer;

means for assigning at the first peer a state of the second peer to an active state or an inactive state;

20 means for assigning at the second peer a state of the first peer to an active state or an inactive state;

means for broadcasting from a broadcasting peer its unique identifier over the unlicensed wireless communication spectrum;

25 means for detecting at a detecting peer a presence of the broadcasting peer within an operating range of wireless communication by monitoring for and receiving the broadcast unique identifier signal;

means for determining at the detecting peer whether the received unique identifier of the broadcasting peer matches a unique identifier previously uploaded to the detecting peer;

30 means for transmitting from the detecting peer an authorization message to the broadcasting peer that authorizes communication connection between the broadcasting peer and the detecting peer, if (a) the received unique identifier of

the broadcasting peer matches the unique identifier previously uploaded to the detecting peer, and (b) the broadcasting peer has been assigned to an active state at the detecting peer;

means for establishing a communication connection between the  
5 broadcasting peer and the detecting peer; and

means for communicating electronic messages between the broadcasting peer and the detecting peer;

wherein a collision avoidance protocol is employed to avoid message collisions among peers operating within the medium range distance of wireless  
10 communication.

34. A system for wireless peer-to-peer communication over an unlicensed wireless communication spectrum within a medium-range distance without routing or relaying of messages, comprising:

15 means for assigning a unique identifier to a peer including at least a first peer and a second peer;

means for uploading a unique identifier of the first peer to the second peer;

means for uploading a unique identifier of the second peer to the first peer;

means for assigning at the first peer a state of the second peer to an active  
20 state or an inactive state;

means for assigning at the second peer a state of the first peer to an active state or an inactive state;

means for broadcasting from a broadcasting peer its unique identifier over the unlicensed wireless communication spectrum;

25 means for detecting at a detecting peer a presence of the broadcasting peer within an operating range of wireless communication by monitoring for and receiving the broadcast unique identifier signal;

means for determining at the detecting peer whether the received unique identifier of the broadcasting peer matches a unique identifier previously  
30 uploaded to the detecting peer;



means for transmitting from the detecting peer a response message to the broadcasting peer, if (a) the received unique identifier of the broadcasting peer matches the unique identifier previously uploaded to the detecting peer, and (b) the broadcasting peer has been assigned to an active state at the detecting peer;

5 means for determining at the broadcasting peer, upon receiving the response message from the detecting peer, to authorize a communication connection between the broadcasting peer and the detecting peer, if (a) the detecting peer is on the broadcasting peer's peer list, and (b) the detecting peer has been assigned an active state on the broadcasting peer's peer list;

10 means for transmitting from the broadcasting peer to the detecting peer an authorization message that authorizes the communication connection between the broadcasting peer and the detecting peer, if the communication connection is authorized;

means for establishing a communication connection between the  
15 broadcasting peer and the detecting peer; and

means for communicating electronic messages between the broadcasting peer and the detecting peer;

wherein a collision avoidance protocol is employed to avoid message collisions among peers operating within the medium range distance of wireless  
20 communication.

35. Computer-executable process steps for wireless peer-to-peer communication over an unlicensed wireless communication spectrum within a medium-range distance without routing or relaying of messages, wherein the  
25 process steps are stored on a computer-readable medium, the steps comprising:

a step for assigning a unique identifier to a peer including at least a first peer and a second peer;

a step for uploading a unique identifier of the first peer to the second peer;

a step for uploading a unique identifier of the second peer to the first peer;

30 a step for assigning at the first peer a state of the second peer to an active state or an inactive state;

a step for assigning at the second peer a state of the first peer to an active state or an inactive state;

a step for broadcasting from a broadcasting peer its unique identifier over the unlicensed wireless communication spectrum;

5 a step for detecting at a detecting peer a presence of the broadcasting peer within an operating range of wireless communication by monitoring for and receiving the broadcast unique identifier signal;

a step for determining at the detecting peer whether the received unique identifier of the broadcasting peer matches a unique identifier previously  
10 uploaded to the detecting peer;

a step for transmitting from the detecting peer an authorization message to the broadcasting peer that authorizes communication connection between the broadcasting peer and the detecting peer, if (a) the received unique identifier of the broadcasting peer matches the unique identifier previously uploaded to the  
15 detecting peer, and (b) the broadcasting peer has been assigned to an active state at the detecting peer;

a step for establishing a communication connection between the broadcasting peer and the detecting peer; and

a step for communicating electronic messages between the broadcasting  
20 peer and the detecting peer.

36. Computer-executable process steps for wireless peer-to-peer communication over an unlicensed wireless communication spectrum within a medium-range distance without routing or relaying of messages, wherein the  
25 process steps are stored on a computer-readable medium, the steps comprising:

a step for assigning a unique identifier to a peer including at least a first peer and a second peer;

a step for uploading a unique identifier of the first peer to the second peer;

a step for uploading a unique identifier of the second peer to the first peer;

30 a step for assigning at the first peer a state of the second peer to an active state or an inactive state;

a step for assigning at the second peer a state of the first peer to an active state or an inactive state;

a step for broadcasting from a broadcasting peer its unique identifier over the unlicensed wireless communication spectrum;

5 a step for detecting at a detecting peer a presence of the broadcasting peer within an operating range of wireless communication by monitoring for and receiving the broadcast unique identifier signal;

a step for determining at the detecting peer whether the received unique identifier of the broadcasting peer matches a unique identifier previously  
10 uploaded to the detecting peer;

a step for transmitting from the detecting peer a response message to the broadcasting peer, if (a) the received unique identifier of the broadcasting peer matches the unique identifier previously uploaded to the detecting peer, and (b) the broadcasting peer has been assigned to an active state at the detecting peer;

15 a step for determining at the broadcasting peer, upon receiving the response message from the detecting peer, to authorize a communication connection between the broadcasting peer and the detecting peer, if (a) the detecting peer is on the broadcasting peer's peer list, and (b) the detecting peer has been assigned an active state on the broadcasting peer's peer list;

20 a step for transmitting from the broadcasting peer to the detecting peer an authorization message that authorizes the communication connection between the broadcasting peer and the detecting peer, if the communication connection is authorized;

a step for establishing a communication connection between the  
25 broadcasting peer and the detecting peer; and

a step for communicating electronic messages between the broadcasting peer and the detecting peer.